



Economic Benefits of Ocean Observations

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Introduction

- Interagency Working Group on Ocean Observations (IWGOO)/Consortium for Ocean Leadership (COL) review of the literature on benefits of ocean observations
- Reviewed all available socio-economic benefit studies and had discussions with a number of their authors
- Evaluated potential to extend applicability of results of existing studies using benefit transfer methods

Acknowledgments

- Discussions with authors of key economic studies (Hauke Kite-Powell/Dennis King/Charles Colgan)
- Socio-Economic Benefits Analysis of GMES
- Business Case for improving NOAA's Management and Integration of Ocean and Coastal Data
- Economics of Australia's Sustained Ocean Observing System
- EuroGOOS Seprise Socio-Economic Analysis: Scoping Report

Outline

- An historical perspective
- Types of benefit study
- Examples
- Next steps

1853 Brussels Conference



Matthew Fontaine Maury, USN



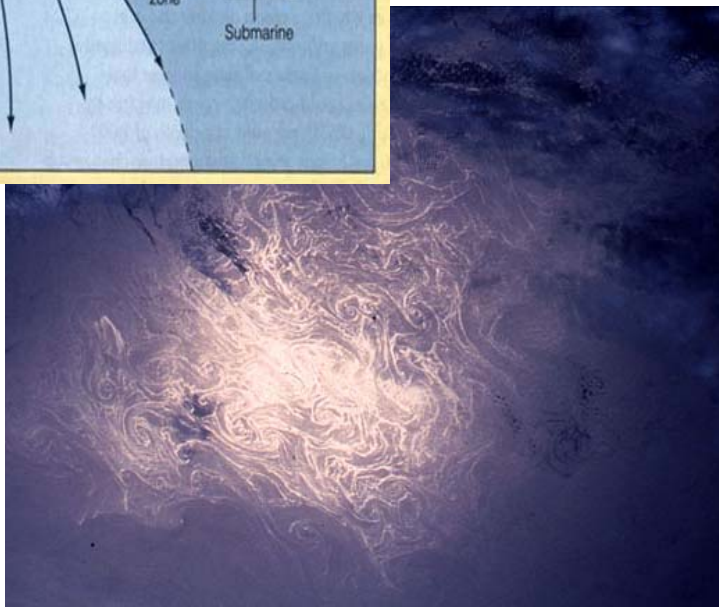
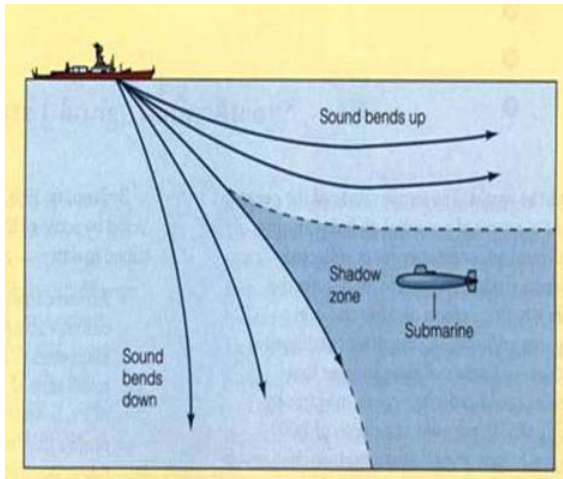
More than 150 years ago Matthew Fontaine Maury set out a plan to organize accumulated weather, seastate and surface current information from ship's logs "in such a manner that each may have before him, at a glance, the experience of all."

- Established the basic principles of operational meteorology and oceanography:
 - Common standards/formats for data collection
 - Common standards for data quality control and analysis
 - Free and open exchange of data/information for global public good
- Benefits of a sustained global system for meteorology were widely recognised after the 1853 conference leading to eventual formation of the WMO in 1947

The Case for Sustained Integrated Observations

- Direct and easy to make for the atmosphere – everyone has an understanding of the value of weather and climate information
- Easy to understand why global atmospheric observations are needed to meet local needs and vice versa
- The case for sustained integrated global ocean observations is much less obvious to decision makers and to the public

Drivers for Ocean Observations



- Research
- Specific legal/regulatory requirements eg
 - Fisheries management
 - Coastal water quality
- Defence needs (especially related to cold war) have been a major driver

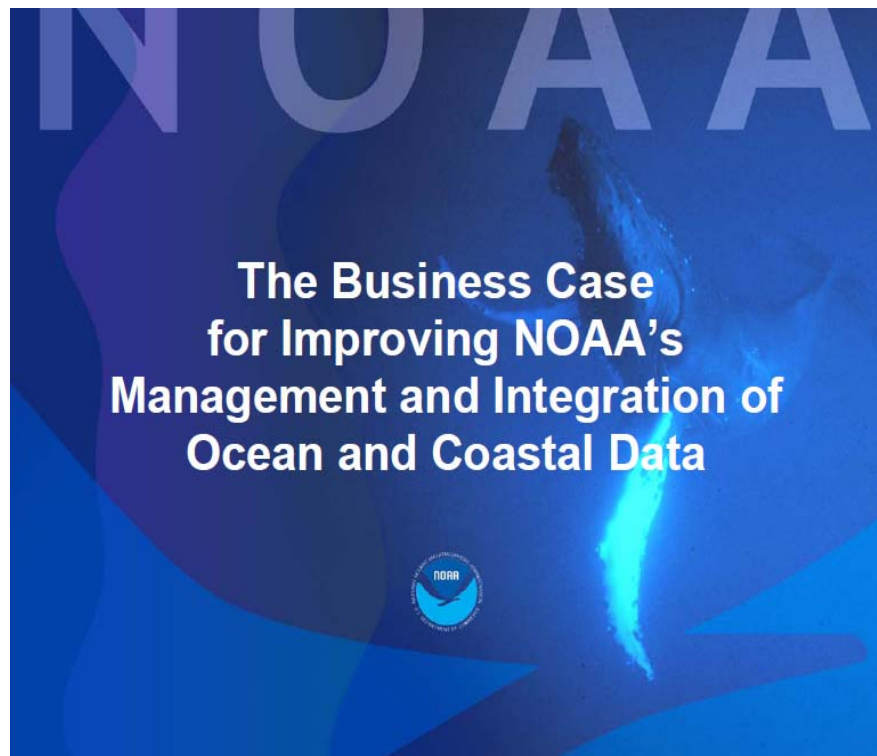
Implications for Ocean Observations

- Has developed as a patchwork of research initiatives, policy/regulation driven monitoring and observations for specific operational/commercial needs
- Only since 1990 and the establishment of the Global Ocean Observing System that the need for a sustained and integrated operational capacity supporting research and multiple socio-economic benefits has been formally recognised

Making the Case?

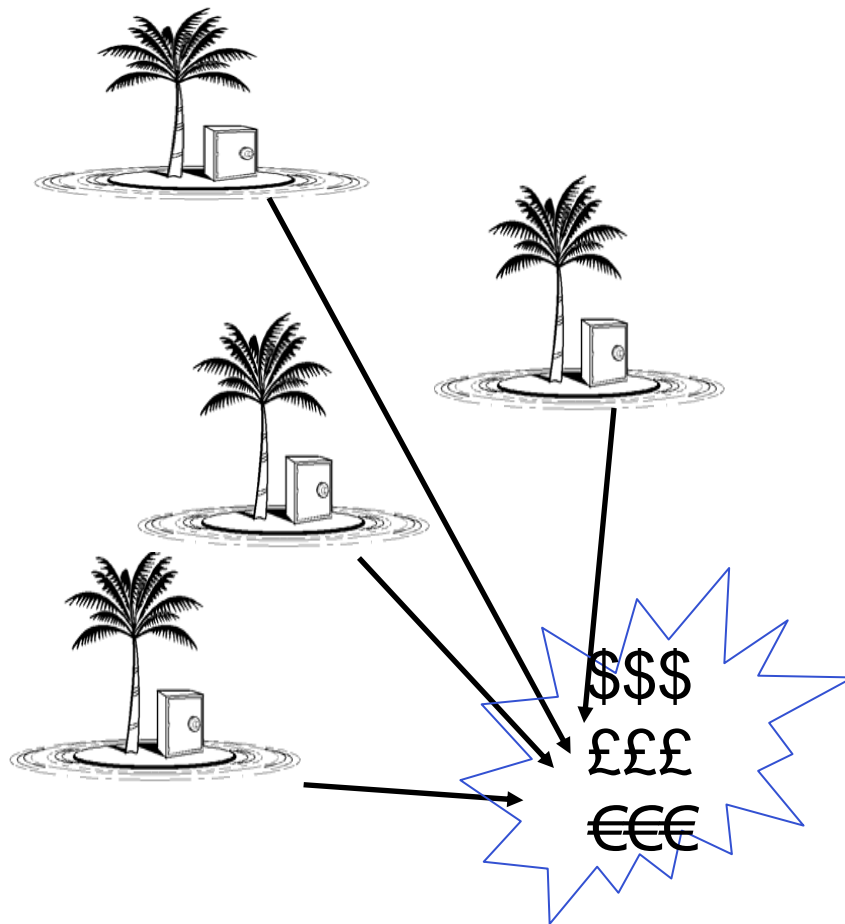
- Benefits are not obvious to decision makers or the public especially given that some of the largest benefits are indirect (eg contribution of ocean observations to improved weather forecasts and climate projections)
- A compelling case for long term investment beyond research funding is needed
- Have we developed this compelling case?

Streamlining Access Collect once, use many times



- Estimates benefit of integration within NOAA to provide more efficient access to data through standards and a common Data Management and Communications (DMAC) infrastructure
- Projected NPV of \$42m over 15 years

Islands of Data



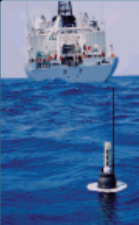
- NOAA IOOS study also identified what are termed 'network effects' – making data more readily and consistently available generates unexpected new uses which add to the benefit of integration
- EU INSPIRE Directive projects Euro 1.2-1.8 billion/annum direct benefit for existing uses + as yet unknown consequent benefits from wider use

Specific Use Benefit Studies

- Many studies of specific benefits for maritime uses (eg HABs and beach closures, fishing effectiveness, coastal erosion, oil pollution prevention etc, etc)
- Derived with widely differing methodologies and sometimes inconsistent results
- Often locally specific
- Difficult to aggregate and compare

National Benefit

**Economics of
Australia's sustained
ocean observation
system, benefits
and rationale for
public funding**



Report for the Australian Academy
of Technological Sciences and
Engineering and the Western
Australian Global Ocean
Observing System Inc.

August 2006

- Estimates the impact of ocean observations on a variety of sectors and especially on agriculture through improved weather and seasonal forecasts

National Benefit

Agricultural productivity	\$241 million
Flow-on benefits in the rest of the economy	\$318 million
Oil production	\$11 million
Iron ore production	\$7 million
Fishing Industry	\$39 million
TOTAL ANNUAL BENEFIT	\$616.9 million

Annual benefit	\$616.9 million
Annual cost	\$27.3 million
BENEFIT COST RATIO	22.6

- Yields a benefit cost ratio that fully supports Australian investment in GOOS
- Makes assumption that rest of the world is playing its part in delivering the overall global system within which the Australian investment is a part

Global Public Good Benefit

Prepared by:

PRICEWATERHOUSECOOPERS 

Main Report
Socio-Economic Benefits Analysis
of GMES



With:



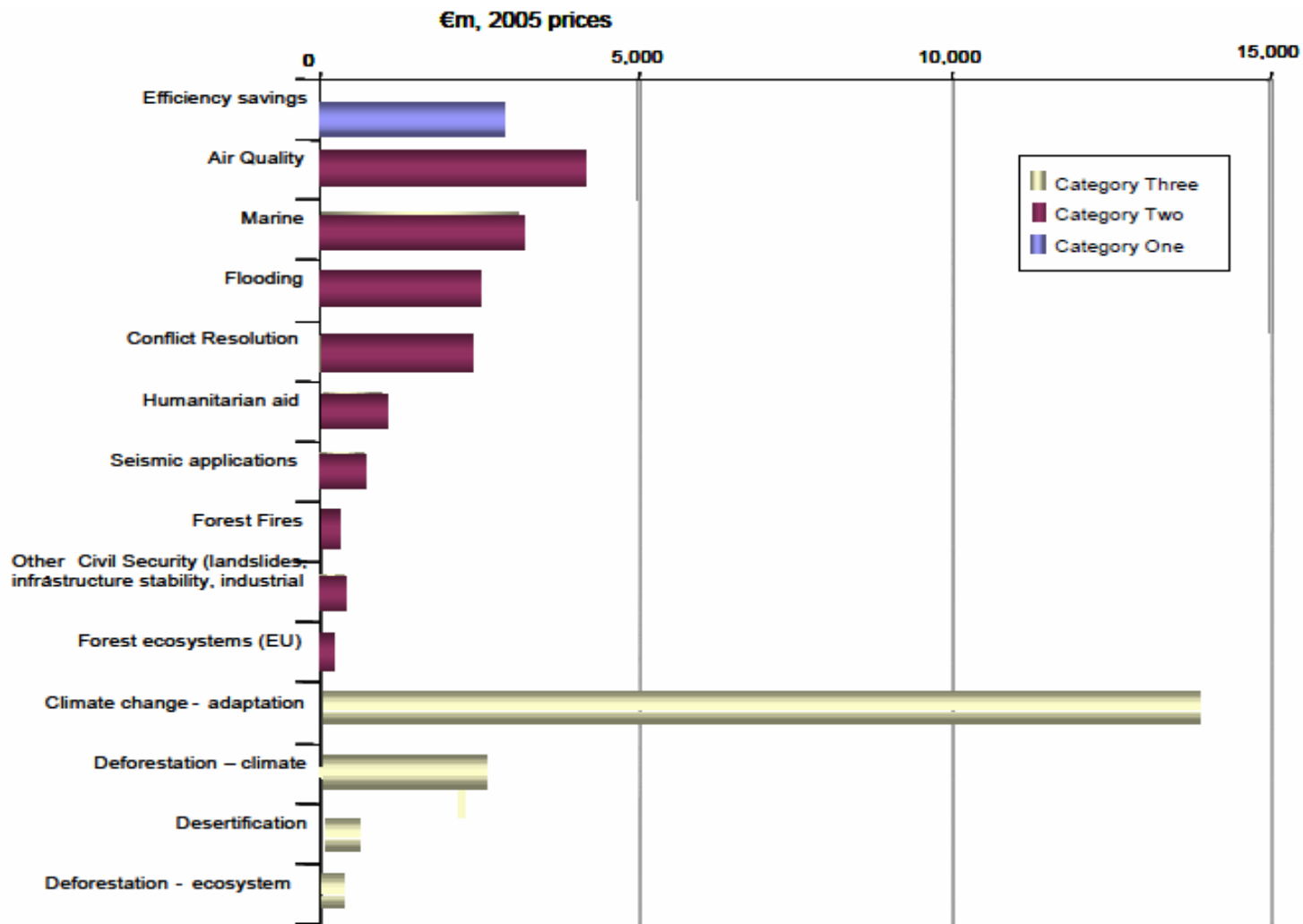
ESA Contract Number 18868/05

Dated
October 2006

- Benefits of full GMES implementation estimated at up to €28B/annum
- Based on expert opinion
- Does not attempt to separate contributions from thematic areas
- Cannot therefore derive contribution of ocean observations

OceanObs'09

Ocean information for society: *sustaining the benefits, realizing the potential*



What Next?



Proposal/Contract no.: 009876

SEPRISE

**Sustained, Efficient Production of Required
Information and Services within Europe**

SIXTH FRAMEWORK PROGRAMME

PRIORITY 1.1.6.3

Global Change and Ecosystems

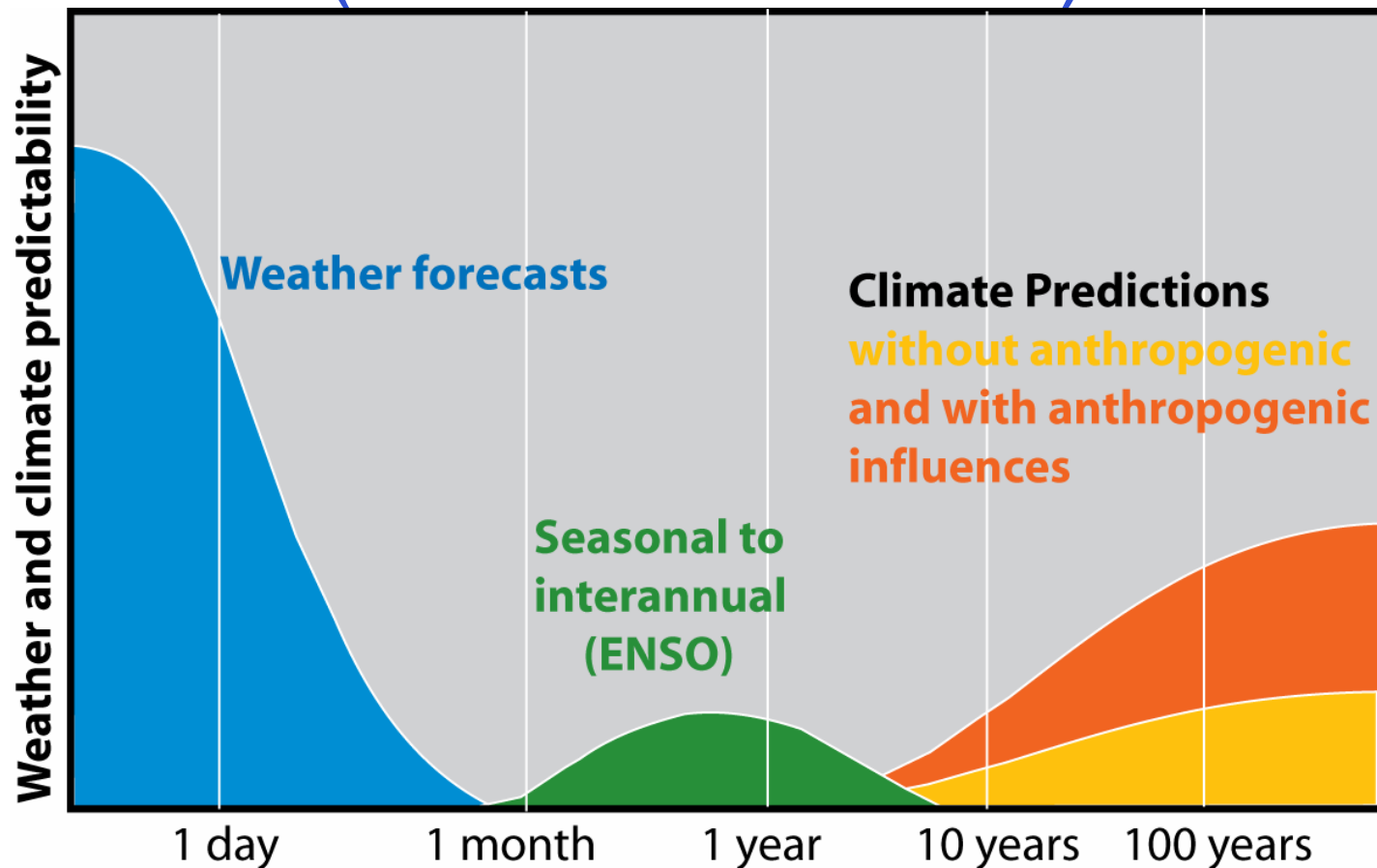
**SEPRISE SOCIO-ECONOMIC ANALYSIS:
SCOPING REPORT**

SEPRISE WP4 Deliverables D4 & D5

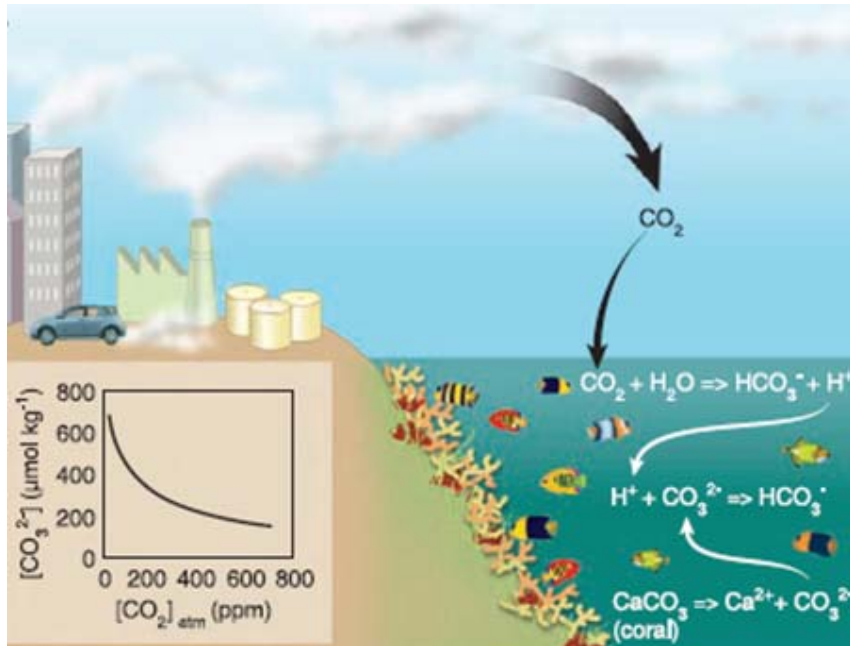
N.C. Flemming

- EuroGOOS scoping report recently identified the steps needed to produce a comprehensive and systematic high level socio-economic analysis for benefits of ocean observations to Europe
- Should implement this scoping study at a global level

Predictability of Weather and Climate (after K Trenberth)



Oceans and Atmospheric Emissions



- Benefit of monitoring the change in efficiency of oceans as a carbon sink
- Benefit of better understanding consequences for biological systems (eg coral reefs - \$800B/50 years – asset value, Net value \$30B/year, currently feed about 1B people)

Delivering a Clear and Compelling Message

- Oceans out of sight, out of mind for most decision makers and the general public
- Urgency to make the critical importance of observing the oceans more widely understood through clear and consistent advocacy supported by a robust and credible business case



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Thanks for listening



21-25 September 2009 | Venice, Italy

www.oceanobs09.net